

ABSTRACT

A method for forming a bottom spin-valve GMR sensor having ultra-thin layers of high density and smoothness and possessing oxygen surfactant layers as a result of the layers being sputtered in a mixture of Ar and O₂. A particularly novel feature of the method is the use of a sputtering chamber with an ultra-low base pressure and correspondingly ultra-low pressure mixtures of Ar and O₂ sputtering gas (<0.5 millitorr) in which the admixed oxygen has a partial pressure of less than 5×10^{-9} torr.